

## On two Encyrtidae parasites (Hymenoptera: Chalcidoidea) of the Rhodes-grass scale, *Antonina graminis* (Maskell), (Hemiptera: Pseudococcidae) in South Africa

by

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The following two species of Encyrtidae are recorded for the first time as parasites of *Antonina graminis* (Maskell) from South Africa: *Neodusmetia sangwani* (Subba Rao), originally known from India, and *Stemmatosteres primus*, which is described as new.

This paper deals with two South African species of Encyrtidae parasitic in the Rhodes-grass scale, a mealybug of economic importance also found in many other parts of the world. These two species, *Neodusmetia sangwani* (Subba Rao) and *Stemmatosteres primus*, described below as new, are the first to have been recorded as hymenopterous parasites of this mealybug in South Africa.

The holotype and paratypes of *Stemmatosteres primus* are in the National Collection of Insects, Plant Protection Research Institute, Pretoria; paratypes are in the British Museum (Natural History), London.

### *NEODUSMETIA* Kerrich

*Neodusmetia* Kerrich, 1964: 75-79.

Type-species *Dusmetia sangwani* Subba Rao, 1957.

This genus includes only the type-species, *Neodusmetia sangwani*, originally described from India as a parasite of the Rhodes-grass scale and introduced into North America for the control of that host. We have also seen material of *N. sangwani* from South America, and according to J. Noyes (personal communication 1981) it also occurs in Australia and Zimbabwe, the latter hitherto representing the only African record of this species known to us.

*Neodusmetia sangwani* (Subba Rao), figs 1-6

*Dusmetia sangwani* Subba Rao, 1957: 385-386.

*Dusmetia indica* Burks, 1957: 125-127; Narayanan, Subba Rao & Ramachandra Rao 1960: 175.

*Neodusmetia sanguani* (*sic*) (Subba Rao): Kerrich 1964: 76-77.

At hand are two females of this species: one slide-mounted specimen from Brazil, determined by L. De Santis, and one specimen from Pakistan, determined by

G. J. Kerrich. The latter specimen was first studied dry on its original card point and then cleared and mounted on a slide. The two specimens were compared with the South African material mentioned below and were found to be conspecific.

The South African females differ somewhat in colour from the card-mounted specimen from Pakistan, and from the original descriptions of this species (see Subba Rao 1957 and Burks 1957), in that they are generally a little darker. But the colour patterns on the body and appendages, which are characteristic of this species, are identical. Structurally, the South African material does not differ significantly. We have not compared any male specimens, but according to the original description, the male of *N. sangwani* is black, with the wings hyaline. All the South African males are brownish-black and the wings palely and entirely infuscated.

*Neodusmetia sangwani* represents a striking genus, and it is readily distinguished from other South African and Ethiopian encyrtids by the features shown in the accompanying figs.

**MATERIAL EXAMINED.** PAKISTAN: Rawalpindi, i.xi.1960, 'Com. inst. Biol. Cont., ex scale on *Cynodon dactylon*, C.I.E. COLL NO. 17492', 1 ♀, det. G. J. Kerrich, 1964 (T 6270); BRAZIL: São Paulo, 8.iv.1969, Goncalves, ex *Antonina graminis*, 1 ♀, det. L. De Santis; SOUTH AFRICA: Pretoria, Tvl., iii.1980, C. Kok, by sweeping Kikuyu lawn grass, 22 ♀ 53 ♂ (T 6240); same locality, iv.1981, G. L. Prinsloo, ex *A. graminis* on Kikuyu lawn grass, 182 ♀ 28 ♂ (T 6291).

### STEMMATOSTERES Timberlake

**Stemmatosteres** Timberlake, 1918: 352–355.

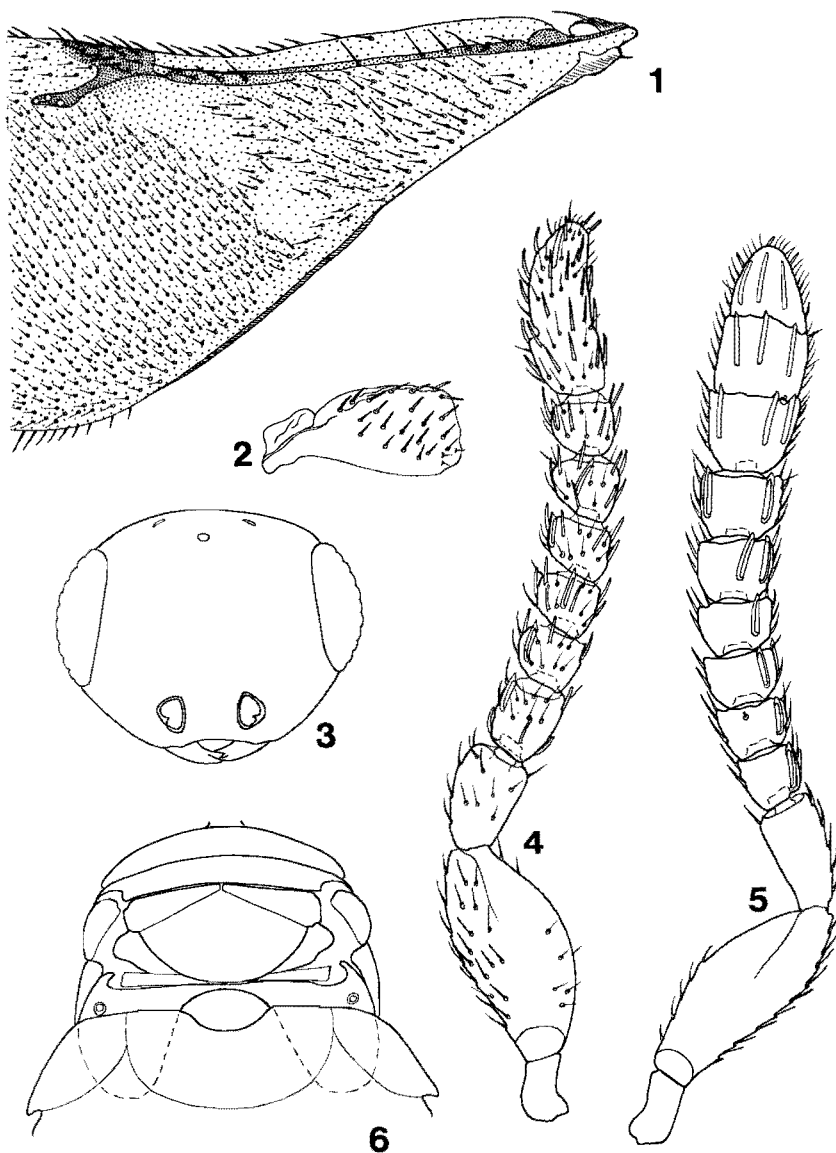
Type-species: *Stemmatosteres apterus* Timberlake, 1918.

This distinct and rather remarkable genus, whose species are characterized, *inter alia*, in both sexes, by the absence of ocelli, a five-segmented antennal funicle, and by the wings which are absent or greatly reduced, was hitherto known from three species: *S. apterus*, recorded from North and South America; *S. kuchari* Yoshimoto from Canada; and *S. bohemicus* Hoffer from Czechoslovakia. *S. apterus* has been recorded from the mealybug *Pseudococcus timberlakei* Cockerell, whereas the hosts of the other two non-African species are unknown.

#### *Stemmatosteres primus* spec. nov., figs 7–13

This new species differs from its congeners in colour and in a combination of structural characters, of which the shape of the thoracic sclerites and the dimensions of the antenna are perhaps the most important. In the female of *S. primus* the club is very broad, shorter than the funicle and pedicel together, and the funicle segments are all strongly transverse. In the other species, the club is more slender, about as long as the funicle and pedicel together, and the funicle segments are not always strongly transverse.

**FEMALE.** Length: about 0.5 mm. Colour: most dried specimens shrink badly, causing a distorted image of the colour; in the few unshrunk dried specimens, as well as in alcohol and slide-mounted specimens in which normal body shape has been



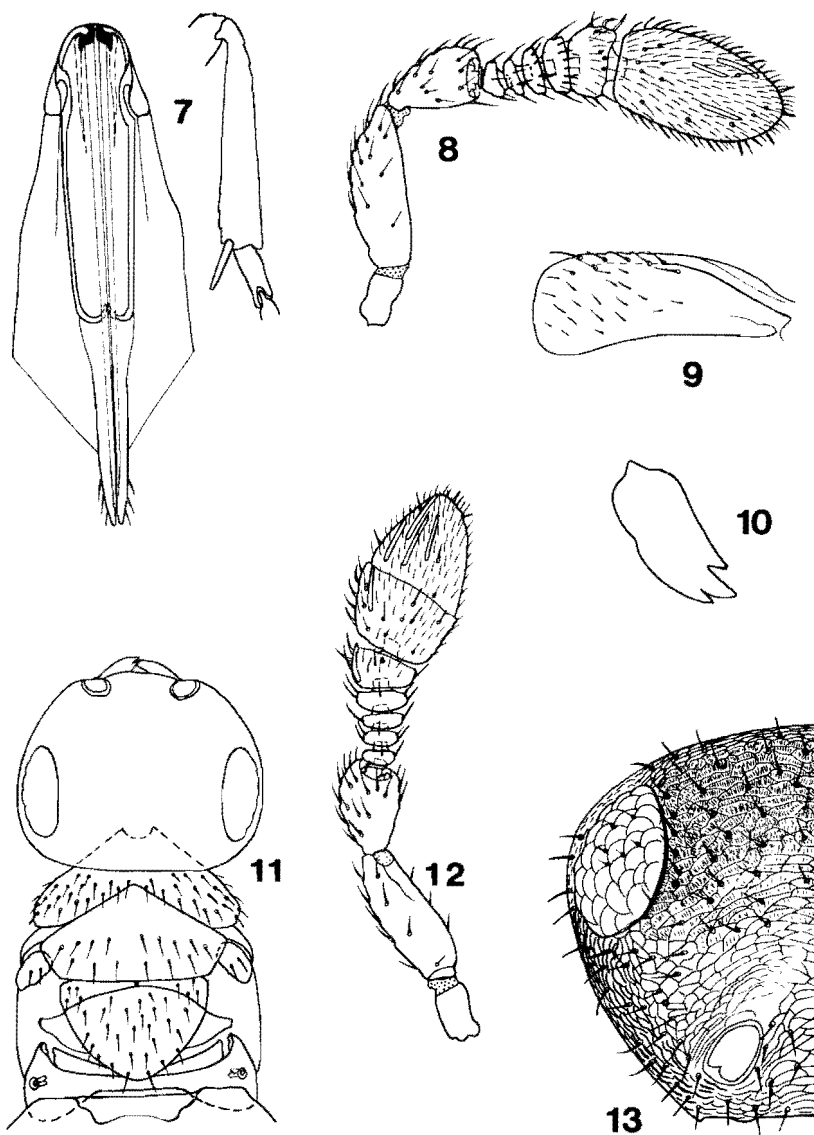
Figs 1–6. *Neodusmetia sangwani* (Subba Rao). 1. Basal half of fore wing (♂ T 6240–2). 2. Fore wing (♀ T 6240–3). 3. Head, frontal view (♀ T 6240–1). 4. Antenna (♂ T 6240–2). 5. Antenna (♀ T 6240–1). 6. Thoracic dorsum (♀ T 6270).

restored, the head (except mouth margin, which is outlined in brownish-black), antennae, thorax and legs are approximately unicolorous, the integument is semitranslucent, appearing sordid white to pale brown; in some specimens the thoracic dorsum is washed with a slightly brighter colour; abdomen a little darker than head and thorax, appearing semitranslucent in some parts; wing stumps hyaline; in most shrunken specimens the head and abdomen appear dark brown, the dorsum of the latter with a brownish-black transverse band near its base, the thoracic dorsum pale brown or yellowish-brown, and the antennal colour similar to that of the head except for the distal club segment, which is notably paler.

Structure of head somewhat unusual: occipital surface concave, the neck inserted near the dorsal margin so that the head may be held either subvertically or horizontally; this characteristic also mentioned in the original generic description; head seen dorsally in the horizontal position (fig. 11) with frontovertex and face lying almost in the same plane, sloping gently forwards to a level near antennal sockets, from where the face slopes strongly downwards to the mouth margin, this area containing the antennal sockets and very short indistinct scrobes; head in this position a little wider than long, about 1.5 times as wide as frontovertex; eyes small, characteristic of the genus; ocelli absent; fronto-occipital margin subacute; head, seen dorsally in the subvertical position, with only the frontovertex visible, about five times as wide as its median length, the anterior margin gently rounded, the occipital margin concave. Antenna with scape subcylindrical, about three times as long as broad (3.0-3.2:1); pedicel large, about as long as the basal four funicle segments together; funicle five-segmented, the segments all strongly transverse, as in fig. 12; club two-segmented, much broader than funicle, somewhat shorter than the funicle and pedicel together; antenna otherwise as in fig. 12. Maxillary and labial palpi each with a single segment; mandible clearly tridentate, the middle tooth longest, as in fig. 10. Integument of head appearing smooth under low magnification, the sculpture indiscernible, the frontovertex with very fine scattered setigerous punctations; sculpture of frontovertex and face under high magnification as in fig. 13, the cells on the former, and upper part of face, with very fine aciculations; setation of head as in fig. 13.

Thorax characteristic of the genus, somewhat flattened dorsoventrally, small, broad, the sclerites mostly transverse; pronotum not as large or long as in the type-species, subtriangular, more or less five times as wide as its median length; mesoscutum and scutellum each plainly wider than long, as in fig. 11; integument appearing smooth, like the head, the sculpture on mesoscutum and scutellum much the same, finely reticulate, the cells large; pro- and mesonotum finely setose as in fig. 11. Fore wings rudimentary, present as two small stumps (fig. 9) extending from the tegulae backwards as far as the metanotum or propodeum; hind wings absent. Middle leg with tibial spur about as long as the adjacent tarsal segment.

Abdomen plainly longer than thorax, the base of the gaster overlapping the posterior part of the propodeum, the larger part of the propodeum as well as the entire metanotum still visible; in the other known species of the genus the propodeum and metanotum are entirely, or almost entirely, concealed by the base of the gaster; gaster approximately parallel-sided, tapering from the level of the cercal plates to an obtusely rounded apex; cercal plates placed closer to apex than to base of gaster; apical sternite large, subtriangular, protruding strongly at apex of gaster in cleared slide-mounted specimens; ovipositor long as seen through the derm, extending a little beyond the protruding apical sternite; ovipositor (fig. 7) about twice as long as middle tibia, about



Figs 7-13. *Stemmatosteres primus* spec. nov., paratypes. 7. Ovipositor and middle tibia, drawn to the same scale (♀ T 6121-1). 8. Antenna (♂ T 6121-2). 9. Fore wing (♀ T 6121-5). 10. Mandible (♀ T 6121-4). 11. Head and thorax, seen dorsally (♀ T 6121-5). 12. Antenna (♀ T 6121-1). 13. Head, anterior view, showing sculpture and setation (♀ T 6121-3).

2.5 times as long as gonostyli, the latter unusually long, about five times length of middle tibial spur, their distal one-third or so protruding beyond the apical sternite; paratergites absent.

**MALE.** Colour: similar to the female. Structurally much as in female except for the antenna, which has an unsegmented club (fig. 8), and the abdomen, which is shorter and broadly truncate apically; genitalia not especially modified.

**MATERIAL EXAMINED.** ♀ Holotype, 68 ♀ 8 ♂ paratypes as follows: SOUTH AFRICA: Pretoria, Tvl., v.1980, M. J. Mynhardt, ex *Antonina graminis* on Kikuyu lawn grass (T 6121). *Note.* One of us (MJM) has dissected several parasitized females of *A. graminis*, and each of these contained between forty and sixty pupae of *S. primus*.

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